

WHAT IS CLAIMED IS:

- 1 1. A system for prolonging the useful lifetime of an optical element upon which a laser
2 beam is directed, the system comprising:
 - 3 a holder adapted for mounting an optical element; and
 - 4 a motor for rotating the holder upon which the optical element may be mounted such
 - 5 that when the laser beam impinges on the optical element, a point of impingement of the
 - 6 laser beam on the optical element is varied when the point of impingement of the laser
 - 7 beam on the optical element is radially separated from an axis of rotation of the optical
 - 8 element.
- 1 2. The system of claim 1, wherein the motor is adapted for rotating continuously the holder
2 upon which the optical element may be mounted.
- 1 3. The system of claim 1, further comprising an optical element mounted to a rotatable optical
2 element holder.
- 1 4. The system of claim 3, wherein the optical element is glued onto the holder.
- 1 5. The system of claim 3, wherein the holder has an outer edge upon which the optical
2 element abuts and a depression in its center filled with adhesive.
- 1 6. The system of claim 3, wherein the optical element projects radially outwardly over the
2 holder.
- 1 7. The system of claim 1, wherein the motor is a stepper motor.
- 1 8. The system of claim 1, wherein the laser beam impinges on the optical element at an
2 inclination angle.
- 1 9. The system of claim 8, wherein the inclination angle is approximately 45°.

- 1 10. The system of claim 3, wherein the optical element reflects a portion of the impinging
- 2 laser beam and transmits a portion of the impinging beam.
- 1 11. The system of claim 10, further comprising a beam dump, and wherein a transmitted
- 2 beam, transmitted through the optical element, is directed into the beam dump.
- 1 12. The system of claim 11, wherein the beam dump is provided on a rear side of the optical
- 2 element.
- 1 13. The system of claim 12, wherein the beam dump is mechanically separate from the
- 2 optical element.
- 1 14. The system of claim 3, wherein the optical element is a mirror.
- 1 15. The system of claim 14, wherein the mirror has a dichroic coating, which reflects
- 2 impinging ultraviolet radiation and transmits impinging visible and infrared radiation.
- 1 16. The system of claim 3, wherein the optical element projects radially outwardly over the
- 2 holder, and wherein the optical element is a mirror.
- 1 17. The system of claim 3, wherein the laser beam impinges on the optical element at an
- 2 inclination angle, and wherein the optical element is a mirror.
- 1 18. The system of claim 17, wherein the inclination angle is approximately 45°.
- 1 19. The system of claim 3, wherein the optical element reflects and also transmits the
- 2 impinging laser beam, and wherein the optical element is a mirror.
- 1 20. The system of claim 3, wherein the axis of rotation is the central axis of the optical
- 2 element, wherein the motor is adapted for rotating continuously the holder upon which
- 3 the optical element may be mounted, wherein the optical element is glued onto the
- 4 holder, wherein the holder has an outer edge upon which the optical element abuts and a

5 depression in its center filled with adhesive, wherein the optical element projects radially
6 outwardly over the holder, wherein the laser beam impinges on the optical element at an
7 inclination angle of approximately 45°, wherein the optical element reflects and also
8 transmits the impinging laser beam, wherein the transmitted beam is directed into a beam
9 dump provided on a rear side of the optical element, or into a stationary beam trap,
10 wherein the optical element is a mirror and wherein the mirror has a dichroic coating,
11 which reflects impinging ultraviolet radiation and transmits impinging visible radiation
12 and infrared radiation.

- 1 21. A method of prolonging the useful lifetime of an optical element, the method comprising:
 - 2 shining a laser beam on an optical element; and
 - 3 rotating the optical element, such that a point of impingement of the laser beam on a
 - 4 the optical element is varied when the point of impingement of the laser beam on the
 - 5 optical element is radially separated from an axis of rotation of the optical element.
- 1 22. The method of claim 21, wherein the optical element is rotated continuously.
- 1 23. The method of claim 21, wherein the optical element is rotated by a stepper motor.
- 1 24. The method of claim 21, wherein the laser beam impinges on the optical element at an
2 inclination angle.
- 1 25. The method of claim 24 wherein the inclination angle is approximately 45°.
- 1 26. The method of claim 21, wherein the optical element reflects a portion of the impinging
2 laser beam and transmits a portion of the impinging beam.
- 1 27. The method of claim 26, wherein a transmitted beam, transmitted through the optical
2 element, is directed into a beam dump.

- 1 28. The method of claim 21, wherein the optical element is a mirror, and wherein the mirror
- 2 has a dichroic coating, which reflects impinging ultraviolet radiation and transmits
- 3 impinging visible and infrared radiation.

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